

Field Study on Malaria in
Icamaramudsum.

COMMUNITY HEALTH CELL

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FIELD STUDY TEAM

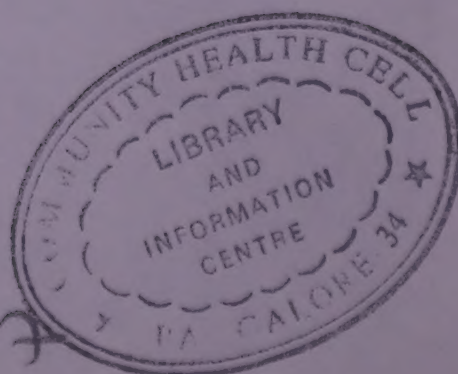
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PREFACE

Investment in various national programmes related to development and health are not new in developing countries. Unfortunately it has not been easy for these programmes to achieve the stated objectives. Yet, such is the faith on these programmes that massive resource commitments are being made, largely without the benefits of hindsight and without analysis of the factors leading to success and failure of previous endeavours.

There is a school of thought which believes that only if representative field data are collected, analysed and directed to planners and decision makers, perhaps many of the programmes will have a chance to reach their stated objectives. In the last few months the community health cell has initiated a study group process and played a role in developing a number of initiatives by networking with people interested in Malaria Control Programme and some activities have evolved focussing on Karnataka. Perhaps against this background Dr.Ravi Narayan -Coordinator, Community Health Cell, Dr.Ravi Kumar, Regional Director, Government of India, Dr.Ghosh, Malaria Research Centre, Bangalore, decided to bring a multi-disciplinary team to go into issues related to Malaria Control Programme, particularly in the context of the recently concluded Bio-environmental control project in Kolar district. Thats how we were brought together. We are indebted to all these people for having given us an opportunity to undertake this field study. Their comments and assistance at every stage has been of immense help. For their unstinting help and the spirit with which it was extended to us, we remain indebted.

We express sincere thanks to Kamasamudra PHC doctors, and other staff for their immense help. Our thanks are also to Sri.Premanand Thambi, SIBS, Bangarpet, and everyone at MYRADA who helped us with workshop arrangements and field work respectively. We wish to express our gratitude to the respondents for having given their time freely and shared their opinion with us.

30th May, 1996

FIELD STUDY TEAM

BANGALORE

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BANGALORE

SUMMARY :

The National Malaria Control Programme envisages reducing malaria as a major public health problem and is attempting to bring about major changes in implementation and monitoring of the programme. In Karnataka malaria has been a major problem for a long period of time and the districts of Kolar, Hassan, Chickmagalur, Tumkur, Chitradurga and Bijapur have been identified as malaria epidemic areas. Several initiatives have been developed in Karnataka to control the problem of malaria through different methods. Among these the bioenvironmental method promoted by Malaria Research Center (MRC) at Bangalore is in its early stages. This method was adopted in Kammasamudram primary health centre area from 1992 onwards. The experience of MRC in implementation of this programme has given the necessary stimulus to replicate this programme in other districts of Karnataka. In order to understand the feasibility, sustainability and the level of community involvement in Bioenvironmental control strategies and other aspects of malaria control programme, the present community dynamic study was undertaken by a multidisciplinary study group in Kamasamudram primary health centre area.

This was an exploratory study with an emphasis on (i) understanding the process and, (ii) identifying various issues in community involvement and participation. The study was an interactive and participatory in nature with community respondents and staff of primary health centre area. Nine villages from different sections of Kamasamudram PHC were selected for this study based on the incidence of malaria during

the first four months of 1996. A total of 155 respondents were interviewed during the study time which included panchayat members, youth club members, pharmacist, anganwadi workers, school teachers, health workers and patients. A review of activities was also done with the primary health center staff to understand malaria control programme in its various facets. At the end of the study, a workshop with the local programme officers and various non governmental agencies in the area was conducted to identify their role and responsibilities in the control programme.

Among the various ongoing activities at the PHC level periodical reporting, passive and active surveillance, regular chemotherapy and, other preventive activities were in progress. The problem of malaria was known to many of the villagers even though they could not attribute clear reasons for its causation. Most of the respondents informed that the local PHC was very popular in providing treatment, even though some unethical practices were noticed by the study team. A major problem noticed was in terms of followup remedial measures, especially radical treatment. Considerable time gap elapsed between collection of blood smears and followup treatment. The health workers visits were not regular and number of reasons were attributed by the staff. Active surveillance for malaria was nonexistent, subsequent to the withdrawal of MRC team and only passive surveillance was in progress. The rapport developed by the health workers with the communities was not effective in terms of initiating community action for controlling malaria.

Insecticidal spraying was unsatisfactory and the cooperation of the villagers was nonexistent. Community respondents had various reasons of their own for refusal of spraying operation. A number of problems were revealed by the PHC staff in terms of difficulty in approach, nonavailability of vehicles, pressures from various other health programme and priorities of workers themselves.

The Bioenvironmental control method of introducing larvivorous fishes in vector breeding areas was initiated during 1993 by MRC team. The technical team was very much accepted by the community and enormous amount of work was done by the visiting team. However, it was noticed that the awareness in the community was not there and number of misconceptions were found to be present. Communities were not aware of their role in this method and had thought introduction of fishes was for consumability and not for vector control. A number of factors like drought prone nature of the area, salinity of the water stagnating water around breeding areas, and unhygienic methods had also contributed for lack of continuation in the programme. Communities were agreeing to come forward and provide adequate help, only if clear and total information was available to them and if they were involved from planning stages.

Environmental sanitation was totally neglected in the entire area with nobody assuming any responsibility for its implementation. The process of decentralization of power was not found to be an answer to this particular problem. Even the developmental work of local nongovernmental agencies was not an integrated approach in the villages which we visited. Treatment for malaria was mainly presumptive and radical treatment was

hapazard. The injection mania of the villagers was predominantly responsible for this state which was inadequately attended by the medical officers at the PHC level. A major area where no activity was going on, was in health education and education whenever attempted was more of, an academic exercise rather than helping the villagers to understand the problems and identify local solutions. An 'information gap' was found to be present between health staff and the local communities. The fish rearing technology was also not effective in terms of communicating the messages to the people who were the final recipients. The lack of intersectoral coordination was a major problem for adopting an integrated approach to malaria control programme. Even though facilities were available at the PHC, the nonavailability of administrative support by the PHC team and the higher authorities was a major detrimental factor.

"The community respondents admitted openly that they were willing to participate in the programme provided total information is given to them and appropriate guidance available through the technical people. The non utilisation of existing resources at the community level was a significant observation."

The present study has been a good learning experience for the study team, in terms of understanding malaria control programme in its various dimensions specially the issue of sustainability. The passive role of communities in malaria control programme was a significant observation. It is very essential to involve the communities by providing total information, and explaining their role and responsibilities

along with providing appropriate guidance and monitoring and supervision of the project for successful implementation of this programme. The intervention developed needs integrated community approach from the inception of the project through continuous dialogues with community respondents. The PHC has to take a major initiative in successful implementation of the programme. Evaluation and monitoring must go beyond members and examine positive change from all sides for longterm sustainability of programmes.

"The National Malaria Control Strategy (NMCS) is directed to provide freedom from malaria to the people of India as their basic right. NMCS takes cognizance of prevailing malaria situation and new epidemiological paradigms in the country. These paradigms are Tribal malaria, Irrigation malaria, Urban malaria and Peri-urban malaria, Project malaria, Marginal rural malaria, Migration malaria, and Border malaria. Malaria control under the primary health care system requires : political commitment , intersectoral coordination, legislative support, interventions based on epidemiological assessment, and flexibility in control approaches. In the background of new epidemiological paradigms, NMCS brings out the need to review: (i) drug policy,(ii) insecticide policy, (iii)re-organization of NMEP in tune with the NMCS,(iv) decentralization of malaria control,(v) epidemiological reasoning in control approaches,(vi) health systems research, and (vii) training."

(Source : National Malaria Control Strategy Document, 1994.)

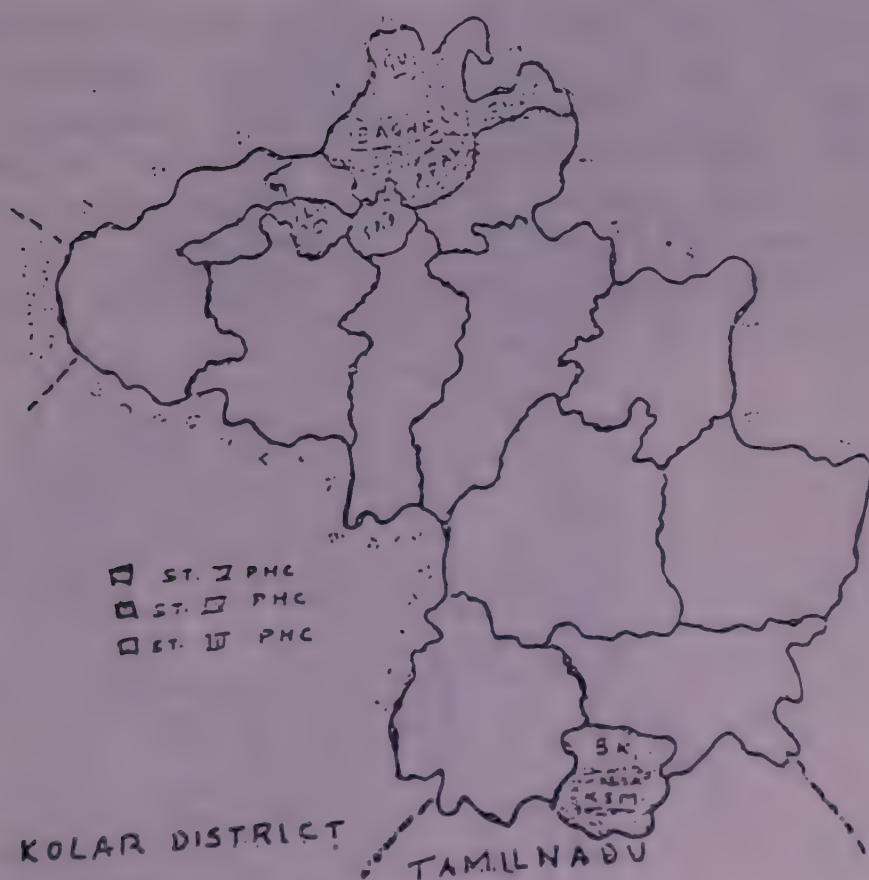
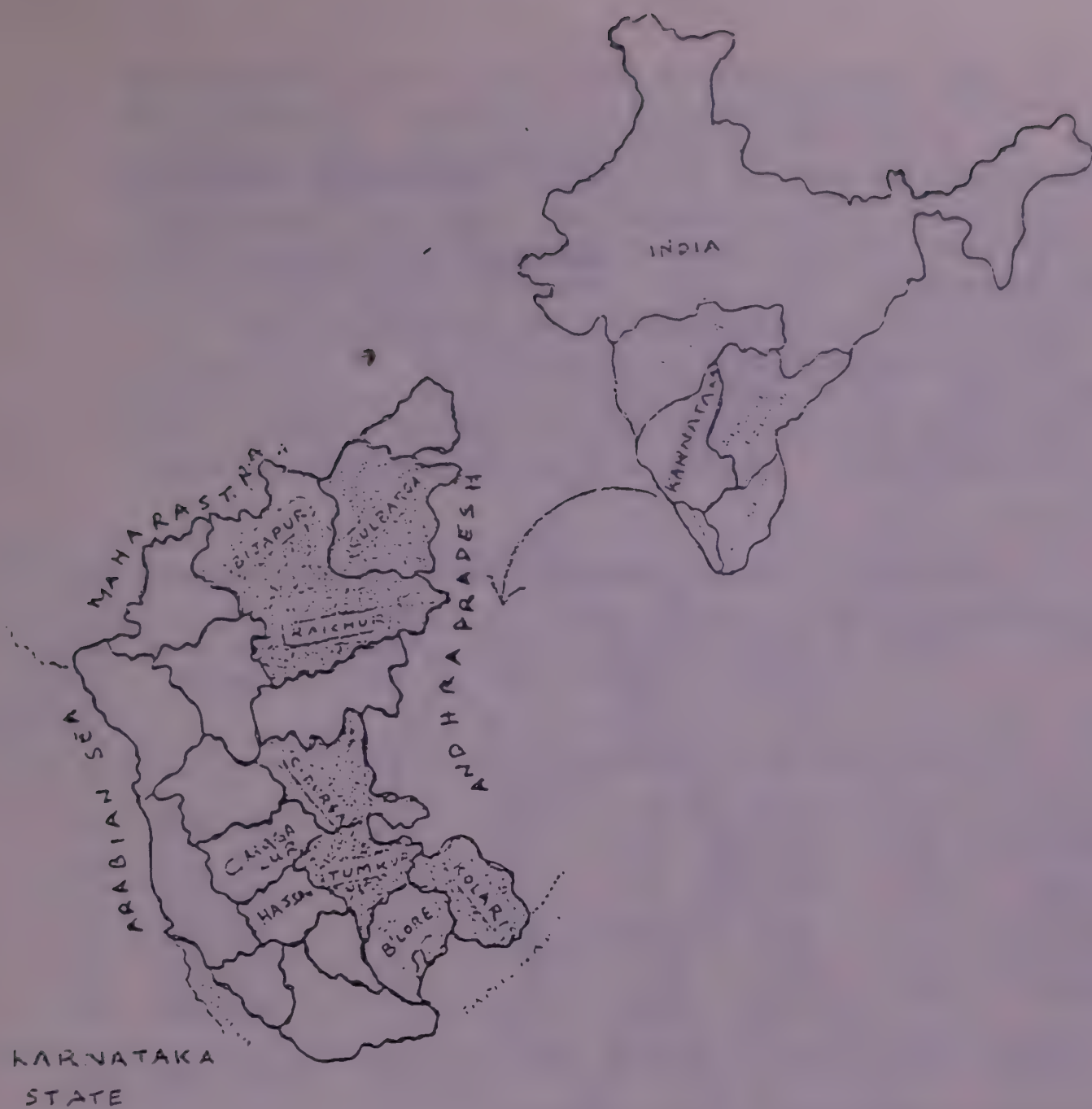


FIG-1. Malaria problem districts in Karnataka state for implementation of Bio-environmental Control Strategy during VIII plan

The PHC staff was initially given two days orientation course on the bio-environmental control strategy. Extensive GR was carried out in all the problematic sections (Fig 3a-3f). After completion of GR work in the malaria problematic villages extensive introduction of larvivorous fish- Lebistes reticulatus (Guppy) was released with the help of PHC staff in all the water bodies from February to April 1994. Studies on sibling species and host preference of An. culicifacies and An. fluviatilis indicated that An. culicifacies A mainly breeds in irrigation wells. Guppy fish was collected from a nearby natural stock (KGF) and released in all the water bodies. Special emphasis was given on irrigation wells. Details of fish introduction is shown in Table-11.

Table - 11 : Details of Guppy fish introduced in Kamasamudram PHC

Sl. No.	Section	Tank	Irri. well	Draw well	Irri. pit	Borrow pit	No.fish intro.	Fish intro. villages
1.	Mustarahally	18	182	26	2	9	18,500	13
2.	Thoppanahally	22	248	23	4	3	42,500	16
3.	Balamanda	10	190	21	2	2	29,000	14
4.	D.P. Hally	4	125	17	0	2	16,500	10
5.	Kamasamudram	13	244	42	12	6	43,000	18
6.	K.G.Hally	18	183	28	12	2	41,500	16
TOTAL		85	1172	157	32	24	1,91,000	87

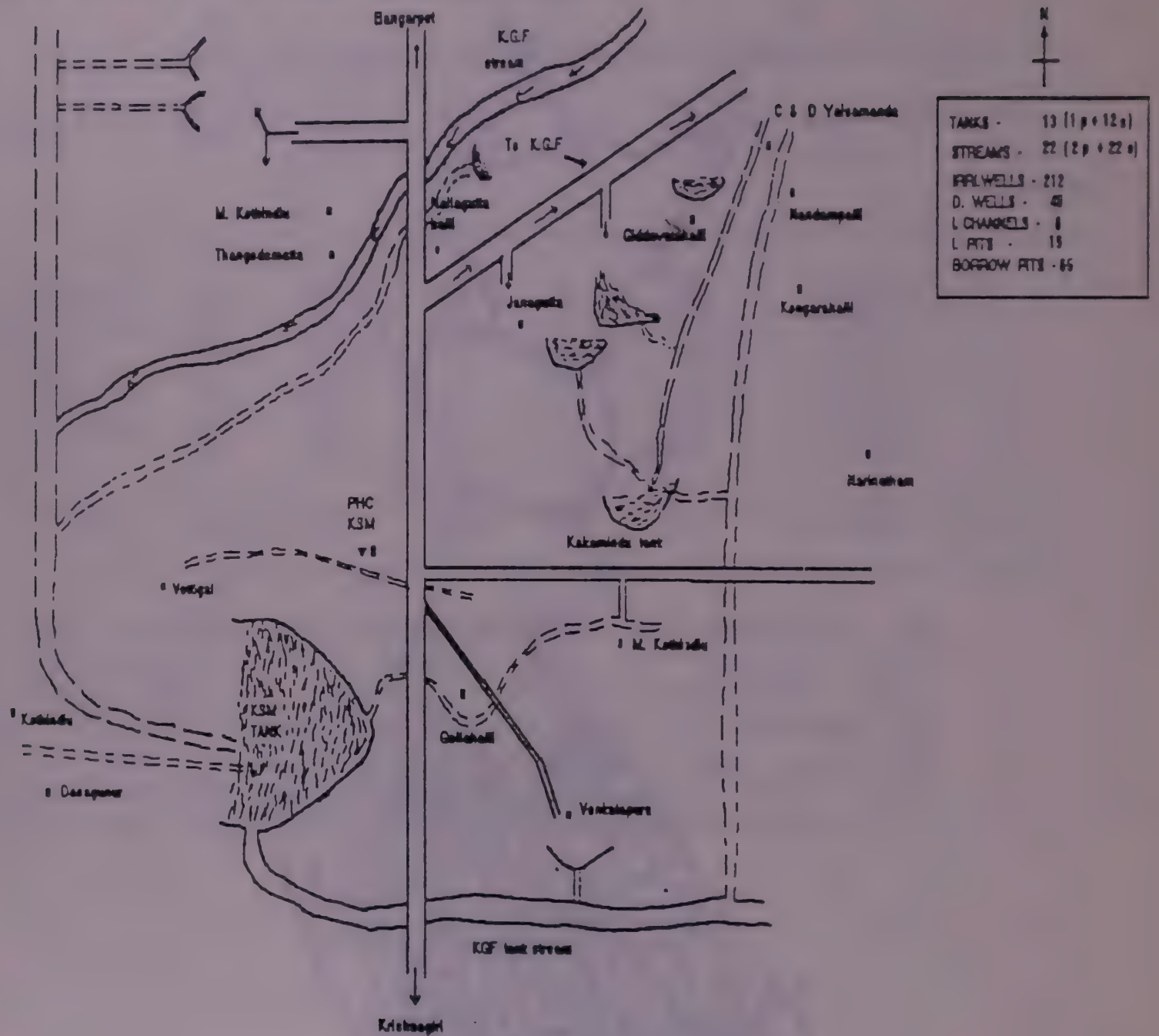
A drastic reduction of malaria cases has been observed. An overall reduction of 61.9% malaria case is recorded when parasitological data of 1993 and 1994 are compared. Upto September 1995 78% reduction in malaria cases is recorded as compared to 1993 (Figs 4a-4f & 5). Malaria in the next PHC (Andersonpet) has been increased by 27 %.(Fig. 6). This shows bio-environmental control method has shown successful results.

FIG 2. PHC KAMASAMUDRAM

District Kolar, karnataka



FIG 3a. MAP OF SECTION KAMASAMUDRAM



1. INTRODUCTION

In malaria control operations at the community level it is understood that the local communities must be involved at every stage of the field operations under the modified plan of operations. This has given rise to increased expectations by the people that their active role should be taken into account in the National Malaria Eradication Programme (NMEP). Since malaria is a local and focal problem, the control measures need to be addressed locally with total community involvement and decentralized planning. At the same time, a number of voluntary agencies working in different developmental programmes as part of the local communities need to be involved at every stage. While many voluntary agencies would be interested in malaria control activity, the required technical support and coordination with other governmental agencies has not been to the desired extent. A programme of this nature designed to benefit the community is bound to meet with problems and failures without the active support and involvement of the communities.

In Karnataka, the problem of malaria has been increasing over a period of time. As per the statistics available from the regional malaria office, Karnataka is one of the highly problematic areas for malaria. The districts of Kolar, Hassan, Chickmagalur, Tumkur, Chitradurga and Bijapur have been identified as Malaria endemic areas with high rates of Plasmodium falciparum infection. Along with this, the problems of insecticide resistance and drug resistance has only added to the existing problem.

2. PURPOSE OF THE STUDY

During the past few months, a group of people from Community health cell, Malaria research centre, Regional office of health, Voluntary health association of Karnataka, Catholic health association of India - Karnataka, researchers from other agencies have met frequently to discuss the problem of Malaria in Karnataka. Preliminary meetings helped in review of the available statistics, role of voluntary agencies, ways in which voluntary organizations can support malaria programmes in different places.

Recently, MRC team had done intense work in Kolar district - Kamasamudra PHC area based on Bio-environmental control methods in controlling malaria. This is the first demonstration - feasibility project for transfer of technology, sustainability and community involvement in Karnataka. Guppies (*Lebistes reticulatus*) were released at several water bodies covering the entire PHC area. This intervention simultaneously strengthened the ongoing surveillance activities, drug distribution and control measures in the PHC area.

The experience of this initial effort as noticed by a declining API has lead towards replication of the same in other districts of Karnataka. However, it was felt that there is a need to make this intervention and other control strategies sustainable in order to make it a "people's programme".

Transforming a technology driven programme or translating intervention from 'Laboratory to Land' requires a basic understanding of the programme in its entire gamut and

community's perceptions of the problem and suggested remedial measures. Such a change calls for 'redefining the roles' and involving everyone in the process.

With this in view, a need was felt to undertake a community dynamics study on malaria control with a special focus on Bio-environmental control methods. A field team comprising of Dr.G.Gururaj (Additional Professor and Head, department of epidemiology, NIMHANS, Bangalore), Dr.B.S.Paresh Kumar (Senior Lecturer, department of sociology, Mysore University), Dr.T.S.Sathyanarayan (Assistant Research Scientific, Malaria research centre, Bangalore), Smt.Neerajakshi (Promotional Secretary, Voluntary health association of Karnataka, Bangalore) and Sri.Ananda N (Programme Coordinator, Catholic health association of India, Karnataka) was constituted to undertake this study in Kamasamudra PHC area.

The need for this present study was felt from several view points. While the country is in the process of developing new strategies and techniques for control of malaria through technological means, it is essential to observe the process of these operations at grassroot levels. Also, a number of new methods have been developed which would be put into practice during the next few years. These interventions will not be sustained without the active involvement of people at local levels. In order to facilitate their participation, a community dynamic study in this area was identified as a thrust area for strengthening malaria control programmes, not only in Kamasamudra PHC area but also in other districts of Karnataka and India.

3.OBJECTIVES OF THE STUDY

Having identified PHC Kamasamudra as a problematic area for malaria, the group decided to focus indepth on a review of ongoing malaria control activities to :

- a) understand the current status of implementation of malaria control activities at village level.
- b) study community knowledge, awareness, perspectives, practices and participatory process in malaria and its control operations.
- c) develop an understanding of the acceptance and involvement in sustainability of Bio-environmental control methods by the communities.

4. SITUATION ANALYSIS

The district of Kolar is situated in the South East region of the state and has a population of over 20,51,729 million (1991 census). The district consists of 3,338 villages spread over 11 taluks over a total area of 98,223 sq. kms. The district receives low rain fall and is a plain terrain region with hilly and less forested area. The district receives low rain fall with an average of about 600 mm. Tanks provide the major source of water for irrigation (total number being 4,479) and the district is known as land of tanks. The major occupation is agriculture. With communities realising that agriculture being difficult to continue, there has been a gradual shift towards sericulture. This is progressing well as a cottage industry. About 80% of the state's silk is produced in this district. There are 45 primary health centers in this district. Information related to the

topographical nature of Kolar district has been summarised in table 1.

Table 1. Salient characteristics of Kolar district.

Area : 98,223 Sq.Kms.		
Population : 20,51,729		
No. of villages : 3,338		
Taluks : 11		
Tanks : 4,479		
Average rainfall : 600 mm.		
Major occupation : Agriculture and sericulture.		
No. of PHCs : 45.		
Major malaria vectors :	Anopheles Culcifacies	(breeding primarily in tanks, irrigation wells, and irrigation pits).
	Anopheles Fluviatilis	(breeding primarily in streams).

Primary health centre Kamasamudra is one of the PHC's, where malaria is highly prevalent. The major reason for taking up this PHC was that malaria was on the increase from 1991 onwards. An epidemiological profile of malaria in PHC Kamasamudra is shown in table 2 .

STATE OF NEW YORK
IN SENATE
January 10, 1911.

REPORT OF THE

COMMISSIONER OF THE LAND OFFICE

IN RESPONSE TO A RESOLUTION PASSED

APRIL 11, 1907.

ALBANY:

THE UNIVERSITY OF THE STATE OF NEW YORK

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Table 2. Epidemiological profile of PHC Kamesamudra

Year	Total Population	Bld. Smear Examined	Total Positives	Plasmodium Vivax	Plasmodium Falciparum	PF%	Slide +ve Rate	Slide Fal. Rate	** ABER	*** API
1991	94710	27183	877	766	111	12.7	3.2	0.40	28.7	9.2
1992	95232	28620	2957	1842	215	10.5	7.2	0.80	30.4	19.4
1993	103357	24774	2080	1724	225	10.8	8.3	0.90	23.9	20.1
1994	103869	22797	1038	888	150	14.6	4.6	0.66	21.9	9.8
1995	106244	24159	666	366	300	45.1	2.8	1.24	22.7	6.3
1996 *	111556	3928	82	63	19	23.2	2.1	0.48	3.5	0.7

* Provision upto March 1996.

** Annual Blood Examination Rate.

*** Annual Parasite Index.

Table 1

Year	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	2051	2052	2053	2054	2055	2056	2057	2058	2059	2060	2061	2062	2063	2064	2065	2066	2067	2068	2069	2070	2071	2072	2073	2074	2075	2076	2077	2078	2079	2080	2081	2082	2083	2084	2085	2086	2087	2088	2089	2090	2091	2092	2093	2094	2095	2096	2097	2098	2099	2100	2101	2102	2103	2104	2105	2106	2107	2108	2109	2110	2111	2112	2113	2114	2115	2116	2117	2118	2119	2120	2121	2122	2123	2124	2125	2126	2127	2128	2129	2130	2131	2132	2133	2134	2135	2136	2137	2138	2139	2140	2141	2142	2143	2144	2145	2146	2147	2148	2149	2150	2151	2152	2153	2154	2155	2156	2157	2158	2159	2160	2161	2162	2163	2164	2165	2166	2167	2168	2169	2170	2171	2172	2173	2174	2175	2176	2177	2178	2179	2180	2181	2182	2183	2184	2185	2186	2187	2188	2189	2190	2191	2192	2193	2194	2195	2196	2197	2198	2199	2200	2201	2202	2203	2204	2205	2206	2207	2208	2209	2210	2211	2212	2213	2214	2215	2216	2217	2218	2219	2220	2221	2222	2223	2224	2225	2226	2227	2228	2229	2230	2231	2232	2233	2234	2235	2236	2237	2238	2239	2240	2241	2242	2243	2244	2245	2246	2247	2248	2249	2250	2251	2252	2253	2254	2255	2256	2257	2258	2259	2260	2261	2262	2263	2264	2265	2266	2267	2268	2269	2270	2271	2272	2273	2274	2275	2276	2277	2278	2279	2280	2281	2282	2283	2284	2285	2286	2287	2288	2289	2290	2291	2292	2293	2294	2295	2296	2297	2298	2299	2300	2301	2302	2303	2304	2305	2306	2307	2308	2309	2310	2311	2312	2313	2314	2315	2316	2317	2318	2319	2320	2321	2322	2323	2324	2325	2326	2327	2328	2329	2330	2331	2332	2333	2334	2335	2336	2337	2338	2339	2340	2341	2342	2343	2344	2345	2346	2347	2348	2349	2350	2351	2352	2353	2354	2355	2356	2357	2358	2359	2360	2361	2362	2363	2364	2365	2366	2367	2368	2369	2370	2371	2372	2373	2374	2375	2376	2377	2378	2379	2380	2381	2382	2383	2384	2385	2386	2387	2388	2389	2390	2391	2392	2393	2394	2395	2396	2397	2398	2399	2400	2401	2402	2403	2404	2405	2406	2407	2408	2409	2410	2411	2412	2413	2414	2415	2416	2417	2418	2419	2420	2421	2422	2423	2424	2425	2426	2427	2428	2429	2430	2431	2432	2433	2434	2435	2436	2437	2438	2439	2440	2441	2442	2443	2444	2445	2446	2447	2448	2449	2450	2451	2452	2453	2454	2455	2456	2457	2458	2459	2460	2461	2462	2463	2464	2465	2466	2467	2468	2469	2470	2471	2472	2473	2474	2475	2476	2477	2478	2479	2480	2481	2482	2483	2484	2485	2486	2487	2488	2489	2490	2491	2492	2493	2494	2495	2496	2497	2498	2499	2500	2501	2502	2503	2504	2505	2506	2507	2508	2509	2510	2511	2512	2513	2514	2515	2516	2517	2518	2519	2520	2521	2522	2523	2524	2525	2526	2527	2528	2529	2530	2531	2532	2533	2534	2535	2536	2537	2538	2539	2540	2541	2542	2543	2544	2545	2546	2547	2548	2549	2550	2551	2552	2553	2554	2555	2556	2557	2558	2559	2560	2561	2562	2563	2564	2565	2566	2567	2568	2569	2570	2571	2572	2573	2574	2575	2576	2577	2578	2579	2580	2581	2582	2583	2584	2585	2586	2587	2588	2589	2590	2591	2592	2593	2594	2595	2596	2597	2598	2599	2600	2601	2602	2603	2604	2605	2606
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Table 2 shows that the incidence of malaria has been on the increase since 1991 as shown by total positives and API. However, since 1993 onwards there has been a decline on the same parameters. To our surprise, the number of Plasmodium Falciparum cases shows a sudden and significant increase during 1995. Intensive analysis of various factors could not explain sufficiently for this increase. MRC team started operating in Kamasamudra area from 1992 onwards. By 1993 June the geographical reconnaissance and fish release was completed. A copy of the maps prepared for this purpose is shown in figure 1. The team also monitored malaria situation during 1994-95 (including cross-examination of smears).

Anopheles Culicifacies and Anopheles Fluviatilis are the most important vectors in this area. These mosquitoes breed in irrigation wells, tanks and streams. Few other breeding sources are irrigation channels, drinking water wells, irrigation pits (also known as farm ponds), seepage water, etc.

Two rounds of DDT are sprayed every year with a coverage of 20% household dwellings and 55% cattle sheds as per the official reports. Due to high refusal rate of DDT spray by local people as it is known to damage sericultural activities, alternate methods of vector control were thought of, among which Bio-environmental control was one of them. This particular methods has formed the backbone of malaria control programme since the beginning of this century. However, these measures took a back seat with the introduction of DDT since 1950s. Due to this intervention much importance was not given for Bio-environmental

control in the programme. Many felt that, if people gave their blood for smear examination and allowed their houses to be sprayed it was enough to control the disease. Time has revealed that this was not to be the case. With the completed turn of wheel, the current strategies emphasize the need for Bio-environmental method along with the people's participation. Due to innumerable number of water bodies, fish rearing as a control measure was given priority in controlling malaria. Based on geographical reconnaissance and vector biology studies, the locally available larvivorous fish "guppy" (*Lebistes reticulatus*) was released into water bodies laying special emphasis on irrigation and draw wells where prevalent vector mosquitoes were found in abundance.

PHC Kamasamudra has a total population of 95,333 and is situated close to Andhra Pradesh and Tamil Nadu. It is situated between 12-19° latitude and between 74-78° longitude. The average rain fall in PHC Kamasamudra was 748 mm. There are 141 villages in this PHC area and malaria is a perennial problem. Out of 11 MPW sections in this area, 6 are considered highly problematic from a malaria view point. The API and the average API rates are given in table 3.

Table 3. API Rates in PHC Kanasanudra area in different villages.

MPW Section	A P I					Average API
	1991	1992	1993	1994	1995	
1. Balamanda	19.3	128.8	72.9	12.2	5.1	66.3*
2. Kethaganahally	17.1	69.0	27.2	72.6	35.6	39.1*
3. Kanasanudra	25.7	47.9	10.6	17.4	18.1	35.1*
4. D.P. Hally	33.3	21.0	8.7	1.3	2.4	19.7*
5. Thopphanahalli	8.2	36.3	11.5	11.2	12.1	17.3*
6. Mustralalli	4.6	21.1	14.4	10.4	15.7	11.2*
7. Velgamadi	1.2	10.7	16.6	16.0	12.1	4.5
8. S.G.Kote	0.3	0.9	4.8	--	0.9	1.2
9. C.A. Hally	0.2	1.0	8.1	--	1.7	0.5
10. Bangarpet	0.1	0.4	2.6	--	1.6	0.3
11. Hudkula	0.2	0.2	11.4	--	1.7	0.2

* Problematic Sections

Source : PHC Kanasanudra

5. METHODOLOGY

This was an exploratory, interactive and a participatory study. Hardcore research methods of sample size, sampling techniques and questionnaires were not incorporated. The study team felt, that an open ended, interactive, participatory and non threatening dialogue with the local communities would be useful to get collective information in this area. Hence, the team adopted a case study approach to study this problem in the PHC Kamasamudra area. Out of the 11 villages in this area, 9 villages from different sections were selected for our study. The selection of these villages were based on malaria incidence during 1996 as shown in table 4. Among these villages, the Bio-environmental Control method of fish release was implemented in all except in Puram. The number of malaria cases during the months of January, February, March and April is shown in table 4.

The field work consisted of intense interactive discussions during early morning and late evening hours. These flexible timings were essential as all the villagers would be available only at this time. The study team also made all efforts to provide adequate representation for men and women, youth and elderly, different sections of villages in terms of caste and also the accessibility of these villages to the Kamasamudra PHC. The village interviews focussed on not only malaria but various ongoing control activities. The sample was opportunistic and each member of the study group approached respondents independently. A predecided checklist was used to elicit information. The areas included in the checklist were demographic data of respondents,

awareness about the disease and its transmission, services provided by PHC and community perceptions about the sustainance of the programme. Information was documented soon after the interview.

Table 4. Distribution of Malaria cases in selected villages.

Village Name	Population	January			February			March			April		
		PV	PF	T	PV	PF	T	PV	PF	T	PV	PF	T
1. C.Yelsamanda	348	-	-	-	5	-	5	1	-	1	-	-	-
2. D. Yelsamanda	358	-	-	-	2	-	2	-	-	-	-	-	-
3. Armanahalli	669	1	-	1	1	-	1	1	1	1	20	1	21 *
4. Thoppannahally	620	-	-	-	-	-	-	1	-	1	3	2	5
5. Bogalahally	271	-	-	-	-	-	-	-	-	-	4	0	4
6. D. Kalavanchi	510	-	-	-	-	-	-	-	-	-	-	-	-
7. Puram	417	4	-	4	2	1	3	3	-	3	6	-	6
8. Bodagurki	650	1	-	1	-	-	-	1	2	3	3	-	3
9. Kamasamudra	2995	-	1	1	-	-	-	-	-	-	3	1	4
Total		6	1	7	10	1	11	5	4	9	39	3	42

* Mass blood survey was done by MRC/PHC team.

* Source : PHC Kamasamudra.

In this way a total number of 155 respondents were interviewed which included 4 local panchayat members, 5 youth club members, 1 pharmacist, 1 Anganwadi worker, 2 school teachers, 9 health workers and 35 patients. Remaining constituted residents of different villages.

Apart from these community interactions, a review of activities was also done with the PHC staff consisting of two medical officers, block health education officer, multipurpose health workers (male and female), and other staff at PHC level. Also, people working in the departments of education, youth affairs, pharmacy, fisheries and others were also met during this time.

On May 12, 1996, representatives of various voluntary agencies, governmental agencies (district malaria officer, assistant health officer), panchayat chairman and members, along with the study team participated in a workshop. The group discussed problems of malaria, control measures along with reflections and observations of study team. Later, a number of areas were identified for mutual collaboration to strengthen programme at peripheral levels (detailed report in Appendix I).

6. FIELD OBSERVATIONS

6.1 ONGOING ACTIVITIES AT PHC AREA :

Even though, PHC Kamasamudra is a highly malaria endemic area, no vigorous activities seems to be ongoing. The activities at the PHC level include periodical reporting, passive and active surveillance, preventive activities in terms of insecticidal spraying, and regular chemotherapy. Even though introduction of

fishes on a large scale was undertaken in this area by MRC Bangalore, the programme seems to have lessened its vigour, subsequent to the withdrawal of the team. As the Medical Officer at PHC remarked "malaria is one among the 52 programmes with regular reporting as and when desired." The need for information by higher authorities seems to be very high as requests are sent every now and then for malaria. Reports are generated and sent, as and when required. The ongoing passive surveillance provides treatment for patients and collection of blood smears. Fish rearing, distribution and maintenance along with surveillance activities seems to be on the decline over a period of time.

6.2 PROBLEM OF MALARIA IN VILLAGES :

In all the villages, people knew about the existence of malaria and reported that it has been their for so many years. But, they were not aware that the problem of malaria was so large and its impact on day to day living of people, specially economic loss to the family, loss of work, loss of school days and other aspects. Many of them believe that poor environmental sanitation was one of the major reasons for spread of malaria, but at the same time they felt that they were totally helpless to do something about it. In one of the village (Armennahalli), where mass blood survey was undertaken in the previous month, almost everyone knew who had suffered from malaria during the past one month and where they took treatment.

Few observed that lack of interest by panchayat members, lack of resources, lack of planning and implementation were responsible for the poor state of environmental sanitation and spread of malaria in their village.

6.3 AWARENESS ABOUT MALARIA :

Majority of the community respondents seem to be knowing about the existence of malaria in their region. The respondents equated chills and fever with malaria. However, majority of them were not aware that malaria is transmitted by mosquito bites. Some even believed that drinking water causes malaria. Other aspects thought to be responsible were environmental sanitation, agricultural-irrigational development, rainfall or the spread of vector species in the region. Majority of them also knew that collecting blood smear and examination will prove or disprove malaria in their body.

6.4 HELP SEEKING PATTERN FOR MALARIA :

Many of the respondents and their family members knew about the existence of the PHC Kamasamudra and its effective role in handling malaria patients. Some were also obtaining care from the local civil hospital at Kolar Gold Fields (KGF). The problem of migration malaria was quite rampant because of the topographical situation of PHC Kamasamudra adjoining to Andhra Pradesh and Tamil Nadu. People from these states due to the popularity of the PHC Kamasamudra came here for obtaining treatment and did not turn up later. The PHC staff could not locate their address during their next visit to villages. The help seeking pattern was also influenced by the availability of drugs in the PHC. We noticed that drugs were adequate and there was no problem in getting the right treatment even though injections were a favourite among the communities.

Though people had known and accepted Kamasamudra PHC for treatment of malaria, a segment of respondents observed that access to the primary health centre, rapport with staff, and existing class differences determined the utilisation pattern. Some of them reported that due to lack of follow up remedial measures, they were not willing to go to PHC and sought help from KGF civil hospital or private practitioners at KGF which was nearly 20 kms away.

6.5 HEALTH WORKER VISITS :

Interactions with the PHC staff revealed that health workers had a definite tour programme every month with villages being identified for visits on particular days. Since the number of health workers were less (2 out of 10 posts of MPW Male and 3 out of 14 posts of MPW Female were vacant), sudden fixing of new programmes and the pressure due to priority of programmes resulted in making their visits to villages somewhat haphazard and less frequent. Added to this, was the problem of nonavailability of vehicle to visit any of the villages. The existing vehicle needs the manpower support of 6-8 people to push it, as and when it stopped. Health workers during their visits to villages could not meet people, leaders or families with malaria patients because the time of their visit was always inappropriate and many would be working in agricultural field at that time. In these situations, only passive surveillance of malaria was found to exist which was appreciated by many of the village respondents. They mentioned that for almost every patient visiting PHC, tablets were given along with an injection, smear was taken and they were informed that the results would be

communicated to them. However, in majority of instances the results of reports was not conveyed back to them. This resulted in patients seeking help from other sources or were provided half treatment or did not radical treatment (to be given for malaria).

Some of the health workers were not found to enjoy adequate rapport with the communities as their scheduled visits were not known, irregular and not at times when people were available. Even when they visited villages, information on malaria was not provided totally except a smear being taken and presumptive treatment being given. Some of the respondents informed that health workers had not visited their villages for more than 6 months with reasons known to health workers rather than village respondents. Some respondents in particular village mentioned that their health workers were more involved in activities other than their stipulated work.

6.6 INSECTICIDAL SPRAYING :

DDT spray is one of the commonest methods of malaria control adopted for a long period of time. The instructions to staff have been to cover human dwellings, mixed dwellings and rooms (Operational manual for malaria action programme, NMEP, 1995, PP112). To our surprise, even the PHC staff were not fully aware of the structures to be sprayed. Our visits to the villages revealed that this was an ongoing activity as noticed by the entry of dates on the walls by the DDT spraying team. Almost every house had this information written on their walls which indicated that the visits were quite regular. Our interaction with the PHC and the District Malaria Officer revealed that the

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availability of DDT and supportive equipment was quite good. Even the villagers many times admitted that DDT spray is important, helps in reducing mosquitoes, gets their environment clean and felt sorry for refusing. However, the reasons attributed for refusal of spraying was because of the fear that sericulture would suffer rather than for health reasons. We did not observe or noticed larvicidal spraying carried out in this area. Few other issues related to spraying have not been taken into account over a period of time. With the increase in sericultural activities and knowing fully well that DDT affects silk worms, communities would not allow DDT spray anywhere in or near to their house. Their house, their neighbours house and surrounding areas were not sprayed in any way. For a number of families involved in sericulture, the process of spraying was just a ritual of an operation. It was only the outside walls, cowsheds, bathrooms, open space in the village, some uninhabited dwelling, which were sprayed. Many of the respondents believed that DDT spray increased mosquito breeding and also resulted in more bed bugs within the house. The use of pressure tactics by spraying team was not helpful in any way as communities did not have basic information on importance of DDT spray, procedure of spraying, merits and demerits, periodicity, reducing the problem of malaria or the spraying techniques or any other issues. This cosmetic work had only increased vectors and some reported that the total coverage was less than 10% for villages and it could be totally stopped. Some of them also felt that DDT on animal fodder was injurious to health of the animals. Women did not approve of spraying within their dwelling area as

it was difficult for them to shift their belongings and tolerance of 'the pungent odour' of DDT for long time. All these factors determine whether DDT spraying is accepted or not by the communities. These issues needs to be discussed at various levels before a final decision about its continuity can be taken.

6.7 SURVEILLANCE ACTIVITIES :

There were number of reactions from the villagers about ongoing surveillance activities. Our interactions with PHC staff and communities revealed that passive surveillance was ongoing and active surveillance had declined subsequent to partial withdrawal by MRC team. In one village, it seems that mass blood smear surveys was also conducted due to a high incidence of malaria in that village. We did not notice or hear about any shortage of laboratory equipments or reagents or other things for continuing surveillance. However the post of Laboratory Technician was vacant for a long time and some junior person was placed on deputation to cover this activity. Majority of the village respondents knew that blood smear needed to be taken whenever they have fever with chills and rigors and tablets need to be swallowed immediately.

However, a number of problems were noticed with regard to the surveillance activity which needs to be strengthened. Accessibility of the primary health centre and villages was a major issue for both communities and the PHC staff respectively. Migratory malaria was more common in this area as people from neighboring states visited the PHC because of "its popularity for treating malaria". At the same time many had not received radical

treatment. They were also not informed about the results of blood smear examination as addresses given were incorrect. Discontinuity in the treatment between presumptive and radical due to nonreporting of smear results was a major problem. This can give rise to increasing drug resistance among new malaria cases and lead to its spread to other regions.

There was no active surveillance going on in this primary health centre even though it is a malaria endemic area. Lack of technical staff in terms of field workers, supervisors, technicians was a major hindrance for malaria control activities. Under the programme, the target approach recommended by the higher authorities that 25 smears to be collected per 1,000 people every month by the health workers had only resulted in incorrect or inaccurate reports of questionable nature. The PHC staff disclosed that they could only collect about 15 smears per 1,000 population. This once again indicates that a target based approach will not work while multiple programmes are going on at the PHC level. The pressure from various other health programmes ranging from immunization to filaria control, had only resulted in relegating malaria as a peripheral activity. The entire nature of work seems to be dependent on how much pressure each programme can exert at the PHC level. The priorities of the health workers themselves for malaria was found to be very low as they did not know the gravity of the situation in their own area. The long period between smear collection, communicating results and providing radical treatment was extremely high ranging from 1-2 months in some instances, as noticed by the notations on

stencils of the wall of houses by the health workers. This leads to problems of drug resistance, transmission of this resistance and problems in longterm control of malaria.

6.8 BIO-ENVIRONMENTAL CONTROL ACTIVITIES :

After identifying malaria as one of the serious problem in this area, the Malaria Research Center in Bangalore undertook the task of testing out the Bio-environmental control strategies. Two types of larvivorous fishes were considered viz., Gambusia (*Gambusia affinis*) and Guppies (*Lebistes reticulatus*). After making geographical mapping of all the vector breeding areas, the team introduced 'Guppies', which were readily available in large numbers into many of the water bodies. Three villages viz., Puram (Kethaganahally section), Bodapathi (D.P.Hally section) and Banganathu (Toppenahally section) were used as control villages as no BEC methods were Introduced in these villages. In 1996, the malaria incidence in one of the control villages (Puram) has shown an increase and this was therefore included in our community dynamics study. The MRC team worked during 1993-95 in this area and fishes were left in many of the potential points of vector breeding (table 5).

Table 5. Details of Guppy fish introduced in Kamasamudram PHC.

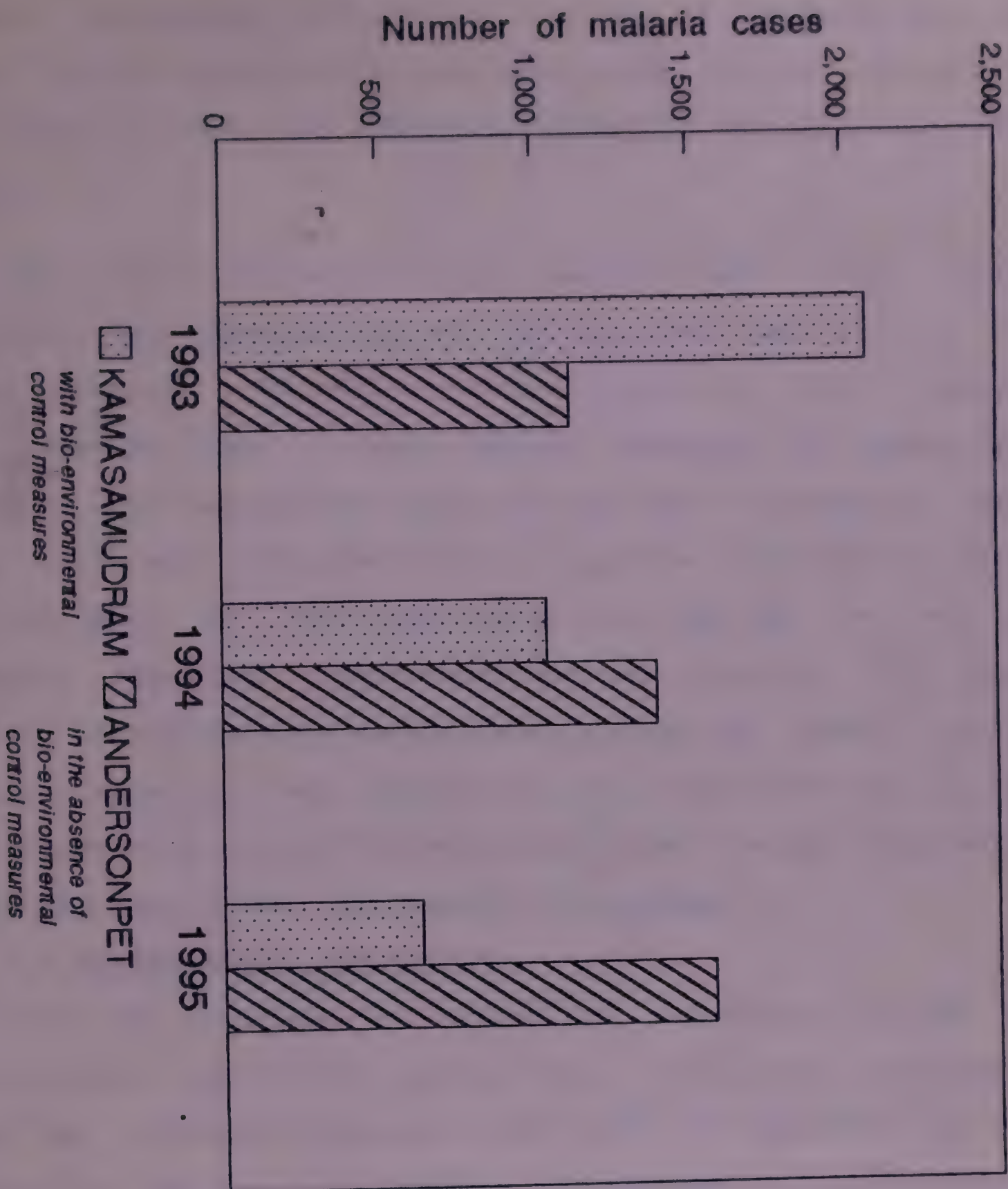
Section	Fish introduced village	Tank	Irrigation Well	Draw Well	Irrigation pits	Borrow pits	Number of fishes introduced
Mustarahally	13	18	182	26	2	9	18,500
Thoppannahally	16	22	248	23	4	3	42,500
Balamanda	14	10	190	21	2	2	29,000
D.P.Hally	10	4	125	17	0	2	16,500
Kamasamudra	18	13	244	42	12	6	43,000
K.G.Hally	16	18	183	28	12	2	41,500
TOTAL	87	85	1172	157	32	24	1,91,000

Medical Officer of the PHC remarked that "it is a remarkably cost effective method." As per the official statistics provided in table 1 and figure 2 it was observed that there was a definite decline in the problem of malaria in this region due to this intervention. It needs to be examined whether fish breeding alone has contributed or a number of combined ongoing activities have resulted in this decline.

Many of the village respondents knew about this 'technology' and also added that this technology helps in purification of water also. Some school children in PHC area were aware of this because of the exhibition arranged by MRC. People were willing to take this up as a continuous ongoing activity only if they were provided all details about this intervention earlier.

The MRC staff were very much accepted by the community during their work. The dedication, commitment and interest of MRC team were brought to light by the PHC team and community. However, the communities were not informed about the growth of fish, methods of survival, precautions they need to adopt, follow up strategies, development of fish hatcheries and others. It was disclosed by the health worker attached to MRC team that 50 out of 80 tanks (where fishes were left) had dried up during summer and all fishes were dead. Since the district is a drought prone area, drying up of tanks is not unusual, but nobody knew what to do next. Many of the community respondents expressed that these fishes were left for consumption purpose and were waiting for them to grow, so that they could catch and consume them. Another important point is that rearing of bigger fishes in areas where

IMPACT ON MALARIA INCIDENCE



Source: Based on PHC data

Guppies are reared leads to Guppies being eaten away by other local predators and thus eliminating the intervention programme. Presence of garbage in the wells, salinity of the water and the water flow or stagnation pattern were other factors determining the growth of fishes and subsequent reduction of malaria in this region.

The communities were totally unaware of many other issues related to fish breeding and were not aware of their role in the entire process. The entire process of getting fish, rearing them, leaving them in water points, presence of hatcheries, follow up, maintenance and sustainability were not known to many them. This only indicates that an excellent opportunity which was available for long term control was lost due to lack of community education, involvement and participation. The other sectors like fisheries, agriculture, irrigation, public works, forestry were in no way involved in the process and thus it had become more of a scientific/technology project being transferred by the MRC team rather than people's programme.

6.9 ENVIRONMENTAL SANITATION :

With the increase in number of activities related to environmental sanitation during this intervention programme, there was a general increase in the level of awareness in the communities and many were willing to cooperate in this process. However, the exact problem was that many did not know how to do it? Who will do it? Will it continue? Will it lead to long term change? Even though many agreed that this is an important area of activity, the "modus operandi" was not known and there was nobody to guide them.

After the decentralization of power and the emergence of panchayat raj, the mandal panchayats were not effective in this process in any way, as many of them did not show any particular interest in this area. A number of voluntary agencies were getting into environmental sanitation like making gutters (open drainage), removing water pools and others, but, however this was fragmented and a piecemeal approach rather than an integrated approach. For example, gutters were constructed in one village without any provision for eliminating stagnating water. Thus even a beneficial work for growth of the community can be detrimental for the health of the same community. Open drainage systems were common in almost every village with intense mosquito breeding. Negligence and noninvolvement of the authorities or those concerned to enlist community participation in keeping villages clean was a major factor in a situation where no educational activities were going on. Waste disposal was not a priority area in the villages, but for many residents the waste had to be stored near to their house, as it could be shifted later for their agricultural lands.

6.10 TREATMENT ISSUES :

The presumptive treatment given by health workers at village level was found to be good as indicated by the community. Availability of drugs and distribution of the drugs at the community and the effectiveness of the medicines were quite good. Thus, PHC Kamasamudra had established itself as a major centre for treatment for malaria during the last few years.



When the active surveillance system slowed down, people had to travel longer distance to obtain complete treatment. The incompleteness of radical treatment might prove to be a grave threat for malaria during the years to come. Villagers were also going through an 'injection mania' as they felt that malaria cannot be treated without the injection by a doctor, which is unethical in its own way. Communities were not convinced that injections are not required for routine treatment of malaria.

6.11 LOCAL METHODS FOR MALARIA CONTROL :

Community practices at the household level such as fumigation of dry or wet grass and burning cow dung cakes was known to every household member. Some people believe the importance of neem tree as an effective measure for mosquito control. Our observations revealed that houses having television, radio and newspapers were aware of bednets, Good Knight, Banish and other mosquito repellants. Question of using impregnated bednets raises the fundamental question of affordability by the communities. There was no active programme going on at the community level to promote local methods towards waste disposal or mosquito control in any of these villages.

6.12 HEALTH EDUCATION :

Our interactions with the PHC and community respondents revealed that there is an immense scope for health education regarding various aspects of malaria control. In the effective control of malaria people were interested in knowing about various aspects of malaria and its control. Individuals expressed that they must be informed about these ongoing

activities, which will enable them to participate at their own level in these programmes. The children at Kamasamudra and the Thoppanahalli were exposed to malaria control activities by MRC through various school exhibitions but had not internalised these issues in their daily life. This had provided good information for children about malaria, but was not continued on a longer run. The educated youth in these villages were also aware of malaria problem and knew about DDT spraying, surveillance and improvement of environmental sanitation. When asked how they were utilising this information, they quipped that " they did not care about it ".

However, there appears to be an "information block and gap" which had resulted in a total lack of or ineffective communication between health staff and the communities. Many of them opined that they could have done health education programmes better, but due to constraints of time, local technology, lack of literature and media support this activity was not done. At the same time, education in schools remained more as an examination question or a topic of study and not for practical day to day application. Health education also suffered due to pressure and prioritization of various programmes at the PHC level. A number of preconceived notions operated in a major way for systematic health education programmes. The question of Bio-environmental control and related health education was a major topic of discussion. As fish rearing was a primary intervention activity of MRC, a question arose as to whether MRC or PHC staff should impart health education. In this division of job responsibilities "nobody bothered about health education

programmes". It was felt that MRC's primary objective was to transfer the technology to state health ministry. But both sides have not taken into consideration " the community " who are the final recipients. The constraints on the part of the MRC was the lack of personnel and familiarity in local languages even though a local PHC person was part of the team. This problem had culminated in total absence of health education at the level of community resulting in lack of any follow up or ongoing activity.

6.13 INTERSECTORAL ISSUES :

Intersectoral activity is a key area for the success of malaria control programme. Number of agencies like Health department, MRC, Forestry, Agriculture, Fisheries, Irrigation, Education, Information and Broadcasting have equal responsibilities to make this programme a success. There was ample evidence of participation by the people as they allowed MRC to use their water spots and irrigation pits for introducing fishes and subsequent distribution without knowing the importance of the same. A good cooperation was also noticed between health staff and the MRC unit at the policy and programme formulation level. The department of forestry had cooperated very well in distribution of tree sapling without even informing the usefulness of it, to the community (at the working level). To these positive steps at the top level, complimentary efforts at implementation level was totally lacking. A top to bottom approach always has the difficulty of converting plans to realities at the field level. The Fishery department was involved only in Bethamangala area and not Kamasamudra area.

There was total lack of dialogues and consensus building on a common platform between various departments. Systematic feed back to all those involved was essentially lacking. Even among the health centre's staff only one person was actively involved in MRC activities and others did not show any concern or interest in Bio-environmental control methods. The local voluntary agencies were totally ignorant about the entire malaria control programme, while their priorities were different, (at grass root levels), even though they expressed willingness to participate.

6.14 ADMINISTRATIVE ISSUES :

The local administration of the PHC and the panchayats play a predominant role in malaria control activities at the PHC level. There was no shortage of drugs, reagents, slides and other basic supportive facilities except manpower and vehicle. The PHC had developed a very good information system on malaria control as noted by the fact information was available even for the first 10 days in the month of May. There was no backlog of slides for examination, but feed back to the patients and the communities was totally lacking. The presence of a chief medical officer at the PHC with qualification and experience in Public Health and a sound commitment to improving health of the people is a positive sign for the success of the programme. This had resulted in continuation of malaria control activities to the possible level despite other constraints. The issue of giving priority for local health problems like malaria in this area was a significant positive development as the information system was excellent with annual reports available on a regular basis.

However, considerable amount of pressure was found to be present on the PHC team due to a number of programmes and follow up actions for each of them. Hence, the priority each programme received was directly dependent on the visits of the senior programme officers from the Directorate. The essential lack of manpower especially MPWs, supervisors and technicians, was a major hindrance. Absence of a vehicle made certain areas nonaccessible as health workers had to travel only by the local bus, which was inconvenient for a programme of this magnitude. The government staff revealed that the recent formation of zilla parishad and decentralization of power had only resulted in less importance for health as the local leaders had become more authoritative and power exerting rather than mutually supportive. Systematic reporting has always been present, but nobody was sure who the end user was?, what happened to these reports?, who does what with these reports?, etc. Lack of monitoring and supervision at the field level by the medical officer who was anchored to the PHC had only resulted in improper programme operation and even if it was implemented, it was 'sans quality'.

The issue of recognizing "a worker's work" at the grass root levels will have a major impact. One of the workers at the PHC was actively involved in MRC activities at the beginning of the programme, but was so disheartened later as he did not receive any appreciation for his work from his superiors. His work was rather considered as a 'plush posting' rather than committed work at the field area. The incentive due to him were not released till date which had made him less enthusiastic over a period of

time. From the administrative view point where malaria is a priority problem, these issues have to be debated extensively. While number of reports and statistics revealed the gravity of the situation, it was less of a priority area at field level and implementation levels.

6.15 COMMUNITY ISSUES :

Communities in villages are also going through a change with the distant impact of urbanization on them. The concept of mixed dwelling is slightly disappearing in villages, giving rise to individual units. Communities in the villages we surveyed were very receptive, open to suggestions, and were well aware of mosquito menace, symptoms of malaria and treatment given. They openly admitted their refusal for DDT spraying because of economical reasons (effect on sericulture). The rearing of fish was a welcome idea in these communities from both the point of malaria control and water purification. Even though many of them admitted that keeping their environment clean was essential, they did not know who should take this responsibility.

At the community level, nonutilization of existing resources like schools, NGO's, panchayats, cooperatives, youth clubs was a notable observation. Many of them did not know their involvement in the control programme, and thus had assumed a passive role while keeping their expectations very high. The lack of confidence in government related programmes at the grass root levels was quite evident. The issues of resistance to DDT, improper radical treatment needs to be examined in greater detail, with the communities assuming a passive role than an

active one. The sustainability of the committed programme like the one by MRC team, makes it less effective, if communities do not take on the responsibility for continuation of the same.

Developmental activities by non governmental agencies did not have any positive impact towards spread of malaria due to lack of integrated efforts.

7. ISSUES FOR FUTURE ACTION

The present study has examined the process of malaria control programme at the level of primary health centre and its villages. A number of bottlenecks have been identified in the existing activities. These issues needs to be taken into account in strengthening existing activities before replicating the programme in different parts of the state and country.

(1) Exchange of information at different levels. Information networks, dialogue groups, consensus building should be undertaken through programme activities between health and related staff from other departments at every level. Even within the PHC, the need for exchange of information among the PHC staff and with the communities is very vital.

(2) Local coordinators need to be identified by the MRC team, PHC team and the government departments to initiate, participate and sustain community programmes in the long run.

(3) The community dynamics needs to be understood at the time of base line data collection and to be continued at regular intervals for further modifications in the programme. The various issues at community level needs to be clarified with the communities for the success of the programme.

(4) Once the intervention is found to be useful and successful, it is always a common practice for the intervening team to withdraw from the field area. Steps need to be planned at the beginning of the programme about various withdrawal strategies on a step by step approach, about gradual and phased withdrawal, handing over to the communities, supervising the continuation of work by the communities and determining the long term impact of the programme.

(5) Importance should be given to the PHC and the communities and for making the programme a "people's programme". This is a very crucial step for the success of malaria or any other prevention programme during long term activities. The PHC should take keen interest from the beginning in order to gain enough expertise to sustain the programme in all areas of work.

(6) Intersectoral planning does not work in isolation. The various sectors needs to be involved by mutual dialogues, sharing responsibilities and commitments, providing information to the community by all the sectors and monitoring in an integrated manner.

(7) The community representatives, local schools, Anganwadis, health workers, block health educators, voluntary agencies and other grassroot level functionaries needs to be trained by MRC in development, operation, maintenance and sustainability of fish technology and the whole team must move collectively for the success of the programme and this needs to be planned in a collaborative way.

(8) Training methodology for these activities needs to be planned at the inception of the programme. The training has to be at individual and group levels, in local languages by using local examples at a time convenient to the community. Designing educational materials in local languages and other aspects needs to be planned in an integrated way.

(9) Evaluation and monitoring of these programmes at the grass root level should aim at the level of peoples participation to setup the programme and not on the officially quoted figures of malaria incidence. Evaluation strategies needs to be entirely different from the current methodologies recommended by many of the agencies.

10) The success of any of these proven technologies is determined by the sustainability of the programme in the long run and whether it is possible to replicate the same in many places. If the programme is to be sustainable it needs to be transferred to people for managing the programme with minimum inputs by technical staff. This needs to be planned in an entirely different way as compared to the ongoing techniques.

At the end of the study, the team continues to ponder over a few crucial questions. "With too many programmes to be implemented at village level, how is it possible to overcome the existing bottlenecks?. How can technologies and programmes developed at premier laboratories could be transferred at grass root level?. Will any of the programmes become "people's programme" in the long run?. At what stages communities will realise prevention and control is a better option for their own socioeconomic development?. Series of questions like this will continue.

We strongly believe that this process of transformation can begin in only one way and that is "by understanding, sharing and working with people."

Appendix I

Malaria Workshop in Bangarpet (Kolar district) on 12th May, 1996.

The workshop on Malaria Control and Community Involvement was jointly sponsored by : (i) Malaria Research Centre, (ii) Department of Health, Government of India, (iii) Department of Health, Government of Karnataka, (iv) Voluntary Health Association of Karnataka, (v) Community Health Cell, Bangalore, (vi) SIBS, Bangarpet, (vii) CHAI, Karnataka and (viii) CMAI, South India office.

- * The workshop was designed to bring about a three way learning process between (a) programme authority, (b) organization involved in implementation and (c) community.
 - * Informal get together was the strategy. No formal positions were created on the dias, thereby much of the official colouring any workshop would get was removed.
 - * Study team members co-ordinated the workshop.
 - * The programme started at 11.00 a.m. with a small prayer followed by a very informal welcome by Sri. Premananda, Secretary VHAI-K and Coordinator SIBS.
 - * The August house introduced themselves. There were 45 people present (inclusive of sponsoring groups) consisting of doctors (5), NGO's (Directors/Animators/Sector coordinators) (21), panchayat members (7), other faculty (3), hospital nurses/health workers (6) and others (3).
- > There were 21 women, 24 men.

Dr. Ravi Kumar, Regional Director, division of health and family welfare services, Government of India, briefly discussed the problem of Malaria in India/Karnataka and outlined the objectives of the workshop. He initiated the dialogue by asking the participants to have an interactive discussion in this workshop rather than didactic lectures.

Dr. Vasudev, District Malaria Officer taking the reins from Dr. Ravi Kumar briefly explained the situation in Karnataka and focussed his views to Kolar district as a whole. He not only gave statistics about positive cases of malaria showing a steep increase in Kolar, but also explained the absence of field workers/technicians whose posts have remained vacant for a long time. He concluded that statistically, prevalence of malaria cases have gone unreported for various administrative short falls and expressed fear that if the system was charged and information was fully available the situation would have been worse than what is today. He then explained the need for community involvement in controlling the disease and highlighted various methods being adopted by the health authorities. He requested Dr. Ghosh who was the next speaker to explain the "Bio-environmental Control" methods being adopted in and around Kamasamudra, which had showed positive results.

Dr. Ghosh spoke at length on the disease/the carrier/and the control methods. He supported his arguments with statistics. B.E.C. method was explained by showing "Guppies" which was collected from Kamasamudra area. Their characteristics and their utility were briefly explained. Every possible question which a

community would have asked at the field level was raised by the participants, Dr. Ghosh was able to provide necessary answers. Dr. Ghosh spoke in English which was translated by Dr. Vasudev to Kannada. There was a brief interval so as to enable the participants to take a look at the exhibition set up by the MRC in the same hall. This experience of "seeing" what they had "listened to" till now, gave the participants more answers and stimulated even questions. "Congratulations to the MRC team for the exhibition !" was an observation made by mandal panchayat representative. MRC entomologist who was present was asked immediately by a participant to examine a nearby well and suggest necessary remedies which was promptly attended to.

After the short break the study team from Bangalore shared their experiences about malaria and control activities, ongoing at the villages from where some of the panchayats members had come.

The presentation was broadly divided into four sectors

Dr. Paresh Kumar explained how the need for this study arose. He emphasized the study was only understanding of the situation at Kamasamudra PHC area where MRC had introduced BEC method to contain malaria. The question which this interdisciplinary team addressed itself was i) How far the efforts of MRC had reached the community? ii) How effectively the programme sustained itself with community participation? iii) To understand the Kamasamudra PHC and its work dynamics in terms of this major disease in all its dimensions. iv) To appreciate and elucidate the success and failures of Kamasamudra PHC staff in

implementing the programme.

- a) their very own problems.
- b) PHC staff vis-a-vis community.
- c) PHC and district administration.

5. Community and its reaction to the programme.

6. Identify areas of concern where corrective measures be taken and possible involvement of voluntary agencies.

The team understood that it was a study, reflection and action based research and "not" an evaluation of the programme, which, would fix responsibilities. The very fact the team comprised of an epidemiologist, entomologist, sociologist, social worker, and coordinator of VHAK, was done intentionally to examine every aspect of Malaria as a disease, as a social issue and as a concern for the community. The team was introduced to the participants. Dr. Paresh quickly summed up the methodology adopted to enter the community. He emphasized that there was no standard questionnaire, nor specific sample size. It was opportunistic sample with total freedom to the team member to elicit information on the four broad based issues namely (i) Demographic data, (ii) Awareness about the disease (iii) MRC intervention (iv) service by PHC/Community participation.

Team members also spent time to educate the respondent about the programme. The interviews were one to one and recording of the information was done immediately after the interviews were over. 'Free Association' methodology was adopted giving maximum freedom for the respondent to give his views. The question were only to guide, to clarify, to initiate the line of discussion.

Field interviews were conducted early in the morning and later in the evening at their door steps. In all 155 interviews were made.

The choice of the villages were made on the basis of PHC statistics of positive cases between January 1996 to March 1996. One control village of MRC was chosen as it had recorded Malaria cases in the recent past.

Dr. Sathyanarayana from MRC explained briefly the bioenvironmental control method and how the same was experimented in Kamasamudra PHC area. He fielded questions pertaining to fish and its utility other than malaria control.

Dr. G. Gururaj provided insights into working of PHC at the field level, their problems, limitations and those areas where cooperation from the people themselves were wanting. He explained the problem facing the field workers and how the administration were insensitive to them. He placed before the participants the lapses that were noticed during active/passive surveillance of malaria cases and how people themselves could have helped to resolve the issues.

Ms. Neerajakashi elucidated various observations, remarks, and questions putforth by the community. She dug deep into community dynamics and how they were reacting to this programme at the gut level. Her respondents, a teacher, a Mandal Women representative, respondents from the weaker section of the society and even a ex-member of panchayat gave their points of view how far the programme remained under wraps from the point of the community.

Based on the field observations provided by the team the participants were divided into two groups to explore the possibility of making the programme sustainable, at the community level. During last 4 years of MRC intervention, in the Kamasamudra area, an inventory of experience gained were made and were examined as to how far they could give meaningful explanation to the lapses of the programme. The group was asked to explore the possibility of correcting the lapses through the experience gained and how far the entire programme could be made people's programme. Dr.Prithvish and Dr.Paresh Kumar were rapporteures to the two groups.

Future course

The two groups came back after their discussion and their recommendations were placed before the house. The following are the areas of consensus of both the groups on which immediate action was suggested.

Voluntary organizations and their participation

Voluntary organizations present admitted that their priority sector was developmental activities but were prepared to take part in the health sector, especially malaria control. Two voluntary organizations representatives offered to provide necessary infrastructure so as to train the people at the grass root level about the programme. They further asked the local PHC to permit the MPW's of the area to participate in the above training programme so that the trainees could interact with their PHC counterpart in the future. They proposed that the training programme should be done at Kamasamudra PHC and field visits be

The first part of the report deals with the general situation of the country. It is a very interesting and informative study of the country's development. The second part of the report deals with the specific details of the country's development. It is a very detailed and thorough study of the country's development. The third part of the report deals with the specific details of the country's development. It is a very detailed and thorough study of the country's development.

CONCLUSION

The report concludes that the country's development is a very complex and multifaceted process. It is a process that requires a great deal of time and effort. The report also concludes that the country's development is a process that requires a great deal of time and effort.

APPENDIX A: LIST OF REFERENCES

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given importance. There was a total consensus by the participants, should a new programme be started the people had to be taken into confidence and told about the programme. Often the programme got underway and then the authorities moved into explain about the programme. This top/down approach at the village level had never given required results and this needs to be changed.

Mass Media

Available literature and other means of communication pertaining to malaria and related issues was not sufficient and comprehensive. Further they were not localized. Hence the workshop suggested that immediate action be taken to make available printed literature, posters which are made out of durable material and they are localized. Hospitals came forward to show video cassettes in their OPD's and inpatient dormitories if they were made available. But they insisted that the material provided should be in local language. They further suggested that there para-medical team will take part in ongoing training programme and will carry the message back to the hospital where there contact with patients was more meaningful.

Voluntary Organizations present suggested that Mahila Mandal in these areas could be effectively used to spread the message and also to identify health worker for this programme. It was their concerned opinion that the Mahila Mandals under their guidance were active and therefore it was easy to get the message across.

Bio-environmental Control

As this was a new area for the village organizations they needed further help and direction. They volunteered to start suitable number of hatcheries at strategic point with the active involvement of local youth and other members of the village. They further said these hatcheries could provide a continuous supply of fingerlings to any one who had a water point and volunteered to nurture fishes in them.

Members of the village panchayat who were present were concerned about the disease and its implications. They were certain that people's participation was not an obstacle. Instead many of the government programmes hardly reached the villages and made its impact. Therefore, "a government programme" evoked least concern. They opined that if the government was able to support them on a continuous basis without giving reasons for mistakes, shortcomings they were prepared to go along with them and also seek the help of the local voluntary organizations. They said it was their credibility which was at stake and not that of the government, if the programme failed.

The meeting requested the authorities concerned to initiate such action necessary to train people by the end of July 1996. These voluntary organizations informed that on a written request from the government they would initiate the identification of members of villages who could be eventually trained to oversee the malaria control programme.

The participants were happy that the workshop was not a formal affair, instead it was informal and recognized the participant as more important than the speakers and guests. They said that if they were aware that the entire workshop was being conducted in Kannada some more members of their organization would have preferred to participate. They requested that it would be necessary and important that the workshop that is being conceived be on the same lines so that a villager may feel at home and put in his best to contain this disease.

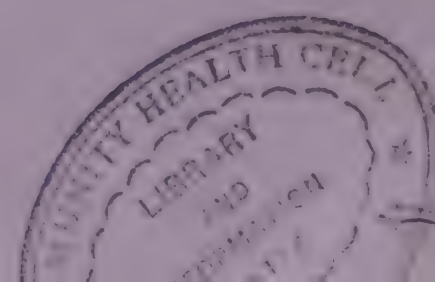
The meeting ended with a vote of thanks.

Appendix II

Some comments by the respondents in their own words which highlight the reality of the situation and provide a qualitative overview of the problems and constraints at different levels are provided below. The respondents expression has been translated to english to the possible extent.

ON HEALTH CARE FUNCTIONARIES.

- * "He comes and signs on the wall and his duty is over"
- * "When we go to PHC, the doctor won't even listen what is our ailment. First he will put a needle in my arm (the same one he has given to earlier patient) then write a slip to buy medicine from outside and charge some cash for this treatment irrespective of our economic status". (rate is Rs.3.50 for injection).
- * "Once they take blood smear the health worker vanishes, leaving four tablets with me. Sometimes the results take one to two months time".
- * "If my contribution to the programme is not recognised, why should I work".
- * "Unless people at high places realise problems at field level, no programme will succeed".
- * "If we do not agree for DDT spraying, the doctor won't allow us inside PHC".
- * "Who will sit and teach us like you did. People do their routine work and go".
- * "Even though we are near to hospital, nobody cares for us"
- * "We do our work and get our salary ".



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ON HEALTH CARE FUNCTIONARIES.

and first of all of our economic and

social conditions.

Health care is a social function.

It is a function which is determined by the social conditions of a country.

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It is a function which is determined by the social conditions of a country.

It is a function which is determined by the social conditions of a country.

- * "PHC doctor does not give us free treatment, we go to KGF private doctor".
- * "Health visitor wants to sit in one place and ask us to collect people so that she can talk to them in a group, it is not right".
- * "Mobility is important in field work. We have a vehicle which is more a nuisance than help".
- * "PHC doctors should have a primary degree in public health and not super speciality".
- * "Programme fails not because of people or the implementation authority but because of the logistic provided by the planner".
- * "Intersectoral coordinator is never there. In Ashraya scheme houses, where is the ventilation? Was health department consulted on these grass root level programmes?
- * "Too little educational qualification or no responsive training, no job satisfaction, we expect them to create miracles at the grass root levels".
- * "Programmes are present yet there is always a small group which keeps working and maintain some semblance".
- * "If DDT spraying has been refused and mosquitoes are resistant why then the programme is being continued and funds put to wrong use".
- * "Anyway we get blood smears to meet the target. How authentic are they".

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ON COMMUNITIES ROLE.

- * "We will do our house work, why should I do neighbours work and who will clean the gutters inbetween".
- * "We do not know Malaria, but we know fever and chills ".
- * "We are poor people. Where to bring money for all other things. Just have some pegs of alcohol and sleep over".
- * "You people came all the way and explained to us about malaria problem, otherwise who talks to poor people like us".
- * "Just because of getting malaria if we don't agree for DDT spraying, we cannot starve as sericulture is our livelihood".
- * "We poor cannot afford bed nets and other things. We cover ourselves in bedsheets or drink arrack and sleep".
- * "You have the time and purpose hence you sit and explain not the government health workers".

ON FISH TECHNOLOGY.

- * "After Delhi team started working in this area the malaria has come down. The fishes they have released in the wells have cleaned water. We are not scared of drinking well water now".
- * "They asked us to plant and look after it so I am doing just that".
- * "They came and released fishes in our well and they do not grow. I thought I could eat them".

ON THE ROLE OF VILLAGE PANCHAYATS.

- * "The panchayat member comes only for votes and not for cleaning the gutter".
- * "Panchayat must do all the work. Why should we do it".

